Université Claude Bernard Lyon 1- Hosting offer for a MSCA Post-doctoral fellowship candidate in bioinformatics and evolutionary genomics

Host Organisation	**Université Claude Bernard Lyon 1**
Department	**Biology**
Laboratory	**LBBE, UMR CNRS 5558**
Website (lab / research team)	**https://lbbe-web.univ-lyon1.fr/**
Supervisor Contact name	**Bastien Boussau, Laurent Guéguen, Anamaria Necsulea**
Supervisor Contact email	**bastien.boussau@univ-lyon1.fr ; laurent.gueguen@univ-lyon1.fr ; anamaria.necsulea@univ-lyon1.fr**

Host Organisation

The Université Claude Bernard Lyon 1 welcomes Marie Sklodowska Curie Postdoctoral Fellowships applications !

With 62 laboratories and more than 7000 publications per year, and leading French university in terms of the number of patents filed in collaboration with industry, Lyon 1 contributes to scientific and innovation progress in numerous fields: health, mathematics, IT, physics, chemistry, earth and space sciences, life sciences, etc. Creator of emerging knowledge and new technologies, the University is consolidating its research excellence on a global and international level by developing inter- and multidisciplinary approaches targeting the major challenges facing today society.

Host research lab/team

The Laboratoire de Biométrie et Biologie Evolutive (LBBE) is a leading research lab in Europe in bioinformatics, genomics, and evolutionary biology. It gathers researchers in bioinformatics, statistics, ecology, and health to tackle questions ranging from genomics to trait and phenotype evolution, or coevolution between species. The LBBE provides a welcoming and friendly research environment with a very horizontal organization.

The Functional Evolutionary Genomics research team aims at combining evolutionary sequence analysis with existing functional data on how genomes encode phenotypes. It aims

at studying the evolution of genomes and the phenotypes they encode, in a variety of clades. For instance, we study the evolution of longevity in mammals, of skeletal morphology in birds, of endosymbioses in plants. Research in the team can be heavily tilted towards method development, notably new methods based on neural networks, or towards data analysis, thanks to the availability of many genomic and transcriptomic data in a large number of species. The postdoctoral candidate is welcome to develop a project in any area of this spectrum.

Keywords : evolutionary genomics ; deep learning ; gene expression ; statistical inference ; chromatin organization ; lateral gene transfer

Hosting Offer

The **LBBE** offers to host a MSCA Postdoctoral Fellowship candidate (typically a post-doc of less than 8 years research experience since PhD defence), submitting an application to the next MSCA-2024 - PF call for proposals (deadline 11th September 2024), interested to work on the following research topic:

- Evolution of genomes and phenotypes across species
- New methods in comparative functional genomics (phylogenetic reconstruction, genome-phenotype associations, analysis of 3D chromatin organization, chromatin accessibility, gene expression)
- Development and applications of deep learning approaches to analyze genomic data across species

The fellowship could last for 12 to 36 months, depending on the type of Postdoctoral Fellowship.

Supervision

The successful Marie-Curie Post-doctoral fellow will be supervised by Bastien Boussau and/or Laurent Guéguen and/or Anamaria Necsulea.

Bastien Boussau is a CNRS researcher. His research interests include genome evolution, genome/phenotype association across species, phylogenetic reconstruction, lateral gene transfer, deep learning methods. Lately, he has worked on new deep learning methods for phylogenetic reconstruction, or for finding genes associated with phenotypes across species.

Laurent Guéguen is an assistant professor. His research interests include models and methods related to sequence evolution at the level of phylogenies (estimating ancestral

events, selection or other processes that have affected sequence evolution, including polymorphisms, simulations), and also with the link to population genetics.

Anamaria Necsulea is a CNRS researcher. Her research interests include the evolution of gene expression and of expression regulatory mechanisms, the evolution of 3D chromatin organization. She is currently developing projects related to the use of deep learning approaches to study the evolution of expression regulatory mechanisms, across a wide range of species.

Application process

Interested candidates are invited to contact us exclusively by email at bastien.boussau@univ-lyon1.fr ; laurent.gueguen@univ-lyon1.fr ; anamaria.necsulea@univ-lyon1.fr

Make sure that you include the reference to this offer in the title of your email. Please attach a CV, a motivation letter, your MSc marks, **as well as a 1 page research proposal**.

Professional grant application support:

Candidates will receive the support of the supervisors, as well as online training from a professional grant application company, and advices from successful applicants, to prepare and submit their application with the LBBE as a host laboratory, to the next MSCA-PF call for proposals.